



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,557	09/27/2001	Richard Charles Allen	55871US002	4597
32692	7590	10/06/2006	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			PRITCHETT, JOSHUA L	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/966,557	ALLEN ET AL.	
	Examiner	Art Unit	
	Joshua L. Pritchett	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19, 21 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to Amendment filed September 20, 2006. Claims 1, 24 and 25 have been amended and claims 27-32 have been added as requested by the applicant.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 8, 9, 13, 17, 25, 26 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto (US 6,002,460).

Regarding claims 1 and 25, Yamamoto discloses a polarizer element (15) having a polarization axis, wherein the polarizer element preferentially transmits light having a polarization axis that is parallel to the polarization axis of the polarization element (col. 5 lines 10-15) and a separate polarization rotator element (12) that has a set alignment disposed in the film and configured and arranged to rotate the polarization axis of the light transmitted by the

Art Unit: 2872

polarizer element to align with another polarization axis that forms an angle of at least 5 degrees with respect to the polarization axis of the polarizer element (col. 5 lines 10-24), where the polarizer element and the separate polarization rotator element are integrated to form a single film (Fig. 2). Yamamoto further disclose a light source (23) and a liquid crystal cell (Fig. 2).

Regarding claims 2 and 26, Yamamoto discloses a first (15) and second (14) polarizer element having polarization axes that differ by at least 5 degrees (col. 5 lines 10-24) and wherein the polarization rotator element is disposed between the first and second polarizer elements (Fig. 2).

Regarding claim 3, Yamamoto discloses the polarization rotator element is configured and arranged to rotate the polarization of at least a portion of the light transmitted by the first polarizer element to within five degrees of the polarization axis of the second polarization element (col. 5 lines 10-24).

Regarding claim 4, Yamamoto discloses the polarization rotator element is configured and arranged to rotate the polarization of at least a portion of the light transmitted by the first polarizer to the polarization axis of the second polarizer element (col. 5 lines 10-24).

Regarding claim 8, Yamamoto discloses the polarizer element comprises a surface to facilitate alignment of the polarization rotator element (col. 5 lines 10-24).

Regarding claim 9, Yamamoto discloses the polarization rotator element comprises a liquid crystal material (col. 5 line 15).

Regarding claim 13, Yamamoto discloses the polarizer element comprises a reflective polarizer (col. 4 lines 10-11).

Regarding claim 17, Yamamoto discloses the polarization rotator element rotates the polarization axis of the light that is transmitted by the polarizer element by an angle in the range of 85 to 95 degrees (col. 5 lines 10-24).

Regarding claim 28, Yamamoto discloses the polarization rotator element is coated on the polarizer element (Fig. 2).

Claims 18, 19, 21-24 and 29-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Kashima (US 6,583,833).

Regarding claim 18, Kashima discloses a polarizer element (19A associated with 18) wherein the polarizer element preferentially transmits a substantial portion of light having a first circular polarization (col. 4 lines 15-20); a retarder element (26) disposed in the film and configured and arranged to convert the polarization of the light from the first circular polarization to a first linear polarization having a polarization axis (col. 4 lines 20-23); and a polarization rotator (19C associated with 22) element configured and arranged to rotate the polarization axis of light transmitted by the retarder element to align with another polarization axis that forms an angle of at least 5-degrees with respect to the first linear polarization (col. 12 lines 56-58); wherein the polarization element, the retarder and the polarization rotator element are integrated into a single film (Fig. 1).

Regarding claim 19, Kashima discloses the polarizer element comprises chiral nematic liquid crystal material (col. 16 lines 28-30).

Regarding claim 21, Kashima discloses a liquid crystal cell (26) that is configured and arranged to operate using polarized light; a light source (below 12; arrows in Fig. 1 show the

Art Unit: 2872

light path); and a film (Fig. 1) disposed between the liquid crystal display cell and the light source, the film comprising a polarizer element (14) wherein the polarizer element preferentially transmits light having a polarization axis that is parallel to the polarization axis of the polarizer element (col. 3 lines 60-63); and a separate polarization rotator element (19B associated with 18) disposed in the film and configured and arranged to rotate the polarization axis of the light that is transmitted by the polarizer element to align with another polarization axis that forms an angle of at least 5-degrees with respect to the polarization axis of the polarizer element (col. 12 lines 56-58); wherein the polarizer element and the separate polarization rotator element are integrated to form a single film (Fig. 1).

Regarding claim 22, Kashima discloses a polarizer (19A associated with 18) disposed between the film and the liquid crystal cell, wherein the polarizer has a polarization axis that differs by at least 5-degrees from the polarization axis of the polarizer element (col. 12 lines 56-58).

Regarding claims 23 and 24, Kashima discloses the polarization rotator element is configured and arranged to rotate at least a portion of the light transmitted by the polarizer element of the film to the polarization axis of the polarizer (col. 12 lines 56-58).

Regarding claim 29 and 31, Kashima discloses the polarization rotator element is disposed directly on the polarizer element (Fig. 1).

Regarding claim 30 and 32, Kashima discloses the polarization rotator element is coated on the polarizer element (Fig. 1).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 6,002,460) in view of Hansen (US 5,986,730).

Yamamoto teaches the invention as claimed but lacks reference to the use of absorbing polarizer elements. Hansen teaches that polarizer elements can be either reflective or absorbing based on the preference of the user (col. 7). A reflective polarizer may introduce some destructive interference when the light is reflected, thus decreasing the transmitted light intensity. An absorbing polarizer would increase the heat within the system by absorbing the light energy. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Yamamoto invention include reflective or absorbing polarizers as taught by Hansen for the purpose of limiting the polarization of transmitted light based on the preference of the user.

Claims 6, 7 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 6,002,460) in view of Shingaki (EP 0487047).

Regarding claims 6 and 7, Yamamoto teaches the invention as claimed but lacks reference to an alignment layer. Shingaki teaches the use of an alignment layer (col. 1 lines 26-32) between the polarizer element and a polarization rotator element. It is further well known in the art that alignment layers can be made of photoaligned polymeric material. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Yamamoto invention include the Shingaki alignment layer for the purpose of maintaining a proper alignment between the polarizer element and the polarization rotator element to maximize the intensity of transmitted light.

Regarding claims 10-12, Yamamoto teaches the invention as claimed but lacks reference to a polarization rotator element that is not a liquid crystal. Shingaki teaches the use of a rotator element that is not a liquid crystal that will absorb some incident light and diffuse some of the incident light (abstract). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Yamamoto invention include a rotator of the material taught by Shingaki for the purpose of creating a polarization rotator that is not adjustable based voltage applied to the rotator to provide consistent precise results.

Claim 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 6,002,460).

Regarding claim 16, Yamamoto teaches the invention as claimed but lacks reference to the claimed rotation angle. A rotation angle of 45 degrees is extremely well known in the art. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the polarization rotator element of Yamamoto rotate the

Art Unit: 2872

polarization of the incident light by 45 degrees as is known in the art for the purpose of transmitting a portion of both s and p polarization to the second polarizer element.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 6,002,460) in view of Kashima (US 6,583,833).

Yamamoto teaches the invention as claimed but lacks reference to polarization rotator disposed directly on the polarizer element. Kashima teaches the polarization rotator element is disposed directly on the polarizer element (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Yamamoto polarization rotator located as taught by Kashima for the purpose of minimizing the amount of light loss between the polarizer element and the polarization rotator.

Response to Arguments

Applicant's arguments filed September 20, 2006 have been fully considered but they are not persuasive.

Applicant argues Yamamoto fails to teach a single film having the recited elements. A film is defined as a thin covering or coating. Yamamoto states that the invention shown in Fig. 2 is to be used for a liquid crystal display. The light (23) coming from below the assembly (Fig. 2) suggests that the assembly is used as a covering for a liquid crystal display. Therefore the Yamamoto reference meets the claimed limitations.

Art Unit: 2872

Applicant argues Kashima fails to teach a single film having the recited elements. A film is defined as a thin covering or coating. Kashmia states that the invention shown in Fig. 1 is to be used for a liquid crystal display (abstract). The light coming from below the assembly (Fig. 1) suggests that the assembly is used as a covering for a liquid crystal display. Therefore the Kashima reference meets the claimed limitations.

Applicant argues element 12 of Yamamoto does not have a set alignment. Set is defined as to cause to assume a specific posture or position (Merriam-Webster's Collegiate Dictionary Tenth Edition). Element 12 is a liquid crystal layer. A liquid crystal can be set to many different alignments depending on the voltage applied to the liquid crystal layer.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


Art Unit: 2872

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L. Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joshua L Pritchett 
Examiner
Art Unit 2872


DREW A. DUNN
SUPERVISORY PATENT EXAMINER